he subsequently succeeded, through strength of will and self-discipline, in overcoming his addiction to cocaine.

One is probably also justified in stating that, though he climbed to the pinnacle of professional eminence and achieved both national and international fame in the world of surgery, the evil drug had forever left its mark on the man.

There surely also is an element of paradox in one of the original discoveries attributed to this great surgeon: the introduction of rubber gloves. Halsted's sole purpose had been to protect the hands of his glamorous theatre nurse, whose skin was hypersensitive to the strong mercuric chloride solutions then extensively used, rather than to eliminate the surgeon as a source of sepsis. Everyone in Baltimore in those early days made fun of gloves. Halsted himself was the last to wear them. All his life, by the by, he expressed surprise that the nurse in question should have married one so unworthy of her as himself, which, as Dr. Welch always insisted, is the correct attitude for a husband to adopt. Happily married, he passes out of the chapter, while I conclude on a personal note. In my suburban and incredibly prosaic life it is a veritable thrill to find myself appearing on the same programme as that king of vascular surgery, Dr. Alfred Blalock. Among Dr. Blalock's many wise and shrewd sayings there is one that comes home vividly to me in relation to the famous man whom we are assembled to praise and who year by year seems to grow in intellectual stature: "It is not necessary to live too closely to great men. It is better to admire them from afar."

## Personal Recollections of Doctor Halsted

By S. J. Crowe, M.D.

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It was by the purest chance that I came to know Doctor Halsted the man, and not merely the surgeon. To make this clear I will have to tell the story of the sick horse. At the end of my first year in the Johns Hopkins Medical School, June 1905, I asked two friends to join me on a camping trip in the North Carolina mountains. We hired a wagon and two percheron horses, and for several weeks drove aimlessly through the mountains with no maps or guides of any kind. At night we slept in the waggon and tied the horses to trees. This was an unusually cold and rainy summer and one morning when I went to feed the horses I found one of them standing with front legs far apart, head hanging and so stiff that it was difficult to get him to move.

Here I was, a relatively penniless medical student, deep in the mountains far from any railroad or town, with a hired horse that looked as if he would never walk again. Without waiting for breakfast, a shave or a wash I mounted the well horse and, moving at a snail's pace, led the other down the road in search of a barn or some advice about what to do for a sick horse. Finally I came to a side road and saw a log cabin in the distance. An old mountaineer was sitting on the porch. He agreed with me that this horse should be under cover and should be seen by a doctor, but he had no other suggestions. It was quite evident that his stable was far too small to house such a huge animal. I was becoming more worried every minute. To my intense irritation the man seemed far more interested in learning where I came from, where I was going and why I was driving through the mountains than he was in helping me with the horse. It finally dawned on me that he suspected I was a revenue agent hunting for illicit stills. I answered his questions as patiently as I could and finally told him I was a medical student at the Johns Hopkins in Baltimore and was here on a vacation. Immediately he became more friendly and informed me that Doctor Halsted lived about two miles up the road, that he also came from Baltimore and that his barn was the only one in these mountains large enough for a horse of this size.

Leaving the sick animal standing in the road I soon arrived at Doctor Halsted's estate, High Hampton, which consisted of 3,000 acres of woodland, two small houses, a beautifully kept lawn, row upon row of the most gorgeous dahlias, and a large barn. It was the barn that interested me most. I subsequently learned from Doctor Halsted that he had been collecting rare and beautiful varieties of dahlias for many years. This garden was his chief delight. My knock on the door of the larger of the two houses was answered by a maid in a dainty white uniform and cap. She said Doctor Halsted was out walking on the place. I sat on the porch feeling very uncomfortable because of my dirty clothes and dishevelled appearance. This feeling was accentuated when Doctor Halsted appeared about an hour later in spotless white flannels. I told him who I was and why I had called on him. Instead of sending his stable man with me, he immediately had his buggy brought around and insisted that we drive down and look at the sick horse. That impressed me as being exceedingly kind and polite to a first-year medical student he had never seen before, but what impressed me most was the care and patience with which Doctor Halsted examined the horse after we got there. Disregarding the muddy road he got out of the buggy and for fully 30 minutes palpated every joint and muscle, and observed very minutely the horse's gait, as I walked him up and down the road.

All this time the mountaineer and his family leaned on the fence and looked. They were not surprised at what they saw. For years the natives had been accustomed to call on Doctor or Mrs. Halsted when their cow, their horse or any member of their family was sick. The Halsteds never

refused, because doctors were few and far between in those mountains forty-seven years ago. Doctor Halsted had always been a student of anatomy, and the number of sick and injured animals he was asked to see during his vacation period in the mountains had stimulated in him an interest in veterinary medicine. He had acquired text books and the necessary instruments, and each year had become more and more interested in the treatment of sick and injured horses and dogs. Mrs. Halsted, who had spent most of her life on a plantation and was accustomed to seeing animals operated on and treated with the crude methods of the natives was greatly amused at some of the Professor's exploits in the field of veterinary medicine. At any rate Doctor Halsted diagnosed my horse's disability as muscular rheumatism. It is true he advocated bandaging the horse from head to foot with oiled silk, which of course was not available, so he had me go to the country store and buy oilcloth such as is used on kitchen tables. After a week in a box stall, rubbed daily with liniment and bandaged with strips of oilcloth, the horse recovered and I went on my way.

That week at High Hampton initiated a change in my attitude toward medicine. Every morning Doctor Halsted examined the horse and then, sometimes accompanied by Mrs. Halsted, we would walk through the dahlia garden inspecting the flowers for insects, or sit in chairs on the lawn and talk. Looking back on those days I realize what this chance meeting with Doctor Halsted has meant to me. He pictured medicine as a living, growing, constantly changing and most fascinating study. To me this was a new concept and when I returned to the medical school a few weeks later, it was with enthusiasm and joy.

Doctor Halsted was a most gracious and charming host, always full of conversation, sparkling with wit, and interested in a thousand things. Others have pictured him as shy and aloof. This is not the Doctor Halsted I knew. He and Mrs. Halsted when at High Hampton delighted in driving along the mountain roads with Nip and Tuck, the older dachshunds in the buggy with them, while Otto, Mädchen and the setters ran along beside them. The dachshund was Doctor Halsted's favourite dog. In a letter dated January 3, 1903, to the young son of one of the University Professors he said: "You must come and see our new dachshund; she is a great beauty, a brunette with a lovely complexion and all the graces of her sex." When, on these drives they met any of the mountain people Doctor Halsted usually stopped and talked, often I am afraid in language quite beyond their comprehension. He was extremely popular, however, having treated so many of them for minor injuries and sending the more seriously ill to the Johns Hopkins Hospital at his own expense. The whole countryside rang with praise at the miraculous thing he did for one patient. This man was working with a band saw and had several of his fingers cut off. The bleeding was controlled with a handkerchief tied around his arm and tightened with a stick. The severed fingers were wrapped in a piece of newspaper and the man was brought to Doctor Halsted with the request that he sew them on. This he did, and the hand healed without infection or post-operative œdema. This was many years prior to his experiments showing that wound infection, and not solely blocking of lymphatics and veins, was the cause of swelling of the arm following radical operation for carcinoma of the breast.

During the next seventeen years it was my privilege to see much of Doctor and Mrs. Halsted in their house at 1201 Eutaw Place. There I learned the story of how rubber gloves came to be used in the operating room. Mrs. Halsted was Miss Caroline Hampton the niece of Wade Hampton of South Carolina, who before the Civil War was the largest cotton grower in America. During the war he was elevated to the rank of Lieutenant-General and was on General Lee's Staff. Her father, also an officer, was killed in the battle of Brandy Station in Virginia. After the war the Hamptons were desperately poor and Miss Caroline determined to become a nurse. She graduated at the New York Hospital in 1889 and was appointed head nurse in the surgical division of the Johns Hopkins Hospital when it was formally opened in May of that same year. In those days and for approximately twenty-five years thereafter, it was the custom on the surgical service to scrub the hands and arms with soap and water, dip them into a saturated aqueous solution of potassium permanganate, then of oxalic acid, and finally soak them for ten minutes in a long, narrow basin filled with a 1 : 1,000 mercuric chloride solution. This technique produced such a marked dermatitis on Miss Hampton's arms and hands that Doctor Halsted asked the Goodyear Rubber Company to make as an experiment two pairs of thin rubber gloves with gauntlets. These gloves proved so satisfactory that additional gloves were ordered. Within a few months not only the nurse, but also the assistant who threaded the needles and passed the instruments began to wear gloves. For several years after this, the operator and first assistant wore gloves only for operations on joints or the central nervous system. It was realized that gloves improved the aseptic technique, but for a long time it was thought that they impaired the sensitivity of touch. I have seen Doctor Halsted and senior members of the staff remove their gloves to palpate a nodule in the breast or to feel for stones in the bile passages. The younger members of the staff, however, grew up with gloves and when they became Residents they rarely if ever removed a glove to improve the sense of touch.

Miss Hampton was head nurse in the operating room for only one year. She and Doctor Halsted were married in June 1890 and went to the Hampton family hunting lodge in the North Carolina mountains for their wedding trip. This is the property that Doctor Halsted later bought and called High Hampton. Both Doctor and Mrs. Halsted had a keen sense of humour, and one day over a cup of tea they told this amusing incident of their wedding trip. Doctor Halsted had been born and

bred in New York City and occasionally had ridden a horse in Central Park, but Mrs. Halsted was an expert and enthusiastic horsewoman. She was anxious to show him the place, and a day or so after their arrival at the hunting lodge the two of them were riding along a trail in the woods when Mrs. Halsted suddenly pulled up her horse and pointing with her riding crop exclaimed in the greatest delight: "William, there is a rattlesnake, get down and kill it." Looking at me with a twinkle in his eye Doctor Halsted said: "There I was alone in the mountains with this comparatively strange woman, and she wanted me to get off my horse and kill a rattlesnake. She was terribly disgusted when I refused."

They were a devoted pair, although entirely different. His chief interest was surgery, research and his medical books. He was not interested in poetry or general literature. His recreations in Baltimore were the collection of antique and beautiful furniture, rugs, china and silver, which filled his house on Eutaw Place and at High Hampton. He liked the theatre, but cared little for art or music. When in North Carolina his chief interests were dahlias, the study of comparative anatomy and diseases of animals, and astronomy. He had a beautiful reflecting telescope and showed me many charts he had made of the moon, the planets and their satellites and some of the fixed stars. Mrs. Halsted's chief interest in life was to make everything comfortable and pleasant for Doctor Halsted, and to interfere as little as possible with his work. Their Baltimore home was a large three-storey brick house. Mrs. Halsted's quarters and the guest rooms were on the third floor. He and his books occupied the second floor. The house was largely heated by open wood fires. Doctor Halsted liked only hickory and white oak. He also was very fond of fresh guinea eggs for breakfast, said they had a gamey taste. On many occasions Mrs. Crowe and I have driven Mrs. Halsted far into the country around Baltimore searching for just the right kind of firewood and the right kind of eggs for the Professor. Mrs. Halsted always went to High Hampton several weeks before the date of Doctor Halsted's arrival in order to supervise the planting of the dahlias and the vegetable garden, and to get the lawn in perfect condition. She was a very practical and efficient woman. In a letter written in 1914, she mentions that she has sold a calf to one of the mountain women and received in payment a stove, four pairs of knitted wool socks, $1.10 and half a dozen eggs. The socks were sent to the soldiers.

Doctor Halsted's study was on the second floor adjoining his bedroom. A wood fire always burned in this room. It was filled with the books and journals he was using at the time. His library was on the first floor, but was used only to house the books. He rarely went out, but often worked far into the night on a paper he was writing, or in preparation for a clinic or ward rounds the following day. He consulted all the literature, both ancient and modern, that bore on the condition to be brought before the class. In thus preparing for a clinic he would sometimes become so engrossed in making innumerable notes about new ideas for diagnosis, treatment, or some research project that he lost all count of time. The following day he would be so fatigued that he would call his resident at the hospital and ask him to take over the class and the operations scheduled for that day. When Doctor Halsted did give a clinic, many of the questions he asked the students were far over their head, and often left the house officers without an answer. This method of teaching aroused many of us to think and to search more deeply for the answers than we otherwise might have done.

Few of us realized at the time how much we gained from association with this man. He was tireless in tracking down every bit of information that would help to solve a puzzling problem. Also he took every opportunity to insist to students and house officers that the work of others always should be recognized and given due credit. Never would he publish a clinical report or experimental study until he was sure that the fundamental facts were correct. He often said that all men are fallible in their interpretation of the facts they present, but the facts themselves must be correct. That was his creed. His depth of feeling, loyalty and devotion to his friends are shown in a letter to Mrs. Henry A. Rowland, the widow of the distinguished Professor of Physics at the Johns Hopkins University.

1201 Eutaw Place

Dear Mrs. Rowland,

I have only this moment heard of your appalling sorrow. If there is anything in the world that I can do please, please tell me. Every moment of my time is at your disposal.

With deepest sympathy and affection

I am,

Faithfully yours,

Tuesday.

At the conclusion of his Address Doctor Crowe presented Doctor Halsted's favourite walking-stick to the Royal Society of Medicine saying that shortly after the death of Doctor Halsted he was given this cane by Mrs. Halsted. It was Doctor Halsted's favourite stick. He used it in Baltimore, on his trips abroad and especially when at his North Carolina estate during the summer.

Doctor Crowe had treasured this cane all these years and it gave him great pleasure to present it through Lord Webb-Johnson to the Royal Society of Medicine.